

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number
WO 2005/100349 A3

(51) International Patent Classification⁷: **C07D 419/14**,
A61K 31/4439, A61P 25/00

(JP). **KAZAMI, Jun-ichi** [JP/JP]; 21, Miyukigaoka
Tshukuba-shi, Ibaraki, Ibaraki 305-8585 (JP).

(21) International Application Number:
PCT/US2005/012837

(74) Agents: **JENKINS, Ph.D., Kenneth, E.** et al.; Townsend
and Townsend and Crew LLP, 12730 High Bluff Drive,
Suite 400, San Diego, CA 92130 (US).

(22) International Filing Date: 13 April 2005 (13.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/562,035 13 April 2004 (13.04.2004) US

(71) Applicants (*for all designated States except US*): **ICA-
GEN, INC.** [US/US]; Suite 350, 4442 Emperor Boulevard,
Durham, NC 27703 (US). **ASTELLAS PHARMA INC.**
[JP/JP]; 3-11, Nihonbashi-Honcho 2-chome, Chuo-ku,
Tokyo 103-8411 (JP).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
YU, ZA, ZM, ZW.

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **WANG, Xiaodong**
[US/US]; 301 Englewood Drive, Chapel Hill, NC 27514
(US). **SPEAR, Kerry, Leigh** [US/US]; 601 Lexington
Road, Concord, MA 01742 (US). **FULP, Alan, Bradley**
[US/US]; 1613 Middle Ridge Drive, Willow Springs, NC
27592 (US). **SECONI, Darrick** [US/US]; 305 Crick-
entree Drive, Cary, NC 27511 (US). **SUZUKI, Takeshi**
[JP/JP]; 21, Miyukigaoka Tsukuba-shi, Ibaraki, Ibaraki
305-8585 (JP). **ISHII, Takahiro** [JP/JP]; 21, Miyukigaoka
Tsukuba-shi, Ibaraki, Ibaraki 305-8585 (JP). **MORIT-
OMO, Ayako** [JP/JP]; 21, Miyukigaoka Tshukuba-shi,
Ibaraki, Ibaraki 305-8585 (JP). **KUBOTA, Hideki** [JP/JP];
21, Miyukigaoka Tshukuba-shi, Ibaraki, Ibaraki 305-8585

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
16 March 2006

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: POLYCYCLIC PYRIDINES AS POTASSIUM ION CHANNEL MODULATORS

(57) Abstract: The present invention provides a genus of polycyclic pyridines that are useful as modulators of potassium ion chan-
nels. The modulators of the invention are of use in both therapeutic and diagnostic methods.



WO 2005/100349 A3